UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/654,881	09/05/2003	Yoshiyuki Muraoka	P24171	6632

7055 7590 08/22/2006

GREENBLUM & BERNSTEIN, P.L.C.
1950 ROLAND CLARKE PLACE
RESTON, VA 20191

EXAMINER	
LEE, CYNTHIA K	

ART UNIT	PAPER NUMBER
1745	

DATE MAILED: 08/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/654,881	MURAOKA ET AL.	
	Examiner	Art Unit	
	Cynthia Lee	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 June 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) *8-10* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *12/9/03, 12/13/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Election/Restrictions

Applicant's election with traverse of Group I, claims 1-7 in the reply filed on 6/12/2006 is acknowledged. The traversal is on the ground(s) that the distinct feature (mean particle diameter of 0.5 to 4.0 um) is not in the independent process claim, but in a dependent claim. Further, Applicant argues that there would be no serious burden to search inventions I and II.

The restriction is still proper because the product does not require a thickener as required by the independent process claim.

Further, to provide evidence of undue burden on the Examiner, MPEP 808.02 states that for related but distinct inventions, undue burden exist if one or more of the following can be shown: A) separate classification, b) separate status in the art if inventions are classifiable together, or c) a different field of search is shown even if the inventions are classifiable together. The Examiner has shown in the previous restriction requirement that the two groups of invention are separately classified which meets the undue burden requirement as set forth in the MPEP.

The requirement is still deemed proper and is therefore made FINAL.

Priority

Acknowledgement has been made of applicant's claim for priority under 35 USC 119 (a-d). The certified copy has been filed on 9/5/2003.

Information Disclosure Statement

The Information Disclosure Statement (IDS) filed 12/9/2003 and 12/13/2005 has been placed in the application file and the information referred to therein has been considered.

Drawings

The drawings received 9/5/2003 are acceptable for examination purposes.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaguchi (JP 2000-021384) in view of Aida (JP 2002-015741).

Yamaguchi discloses a battery comprising a wound assembly of a positive electrode, a negative electrode and a separator interposed therebetween, accommodated in a case together with electrolyte (see fig. 1 and 3). Yamaguchi discloses a band-like connection section (7) (applicant's strip-like conductive portion) formed on bare substrate material [0030] and welded to a collecting electrode plate (6) (applicant's current collector) [0010].

The band-like connection section is formed with a foaming nickel or a nickel fiber porous body [0020] (applicant's claims 1 and 4). The Office notes that the limitation "powder" in applicant's claim 6 does not exist in the final product and is considered to have been met by Yamaguchi's foaming nickel or a nickel fiber porous body. The edge

of the porous layer is in contact with the active material of the electrode (Fig. 9) (applicant's claim 2).

Yamaguchi does not disclose that the porous nickel substrate (9) is sintered (applicant's claim 6). However, Yamaguchi discloses that it is compressed into high density. It is commonly known in the art that sintering increases density, strength, and conductivity. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to sinter Yamaguchi's porous substrate for the benefit of decreasing the surface area of the fibers by sintering.

Yamaguchi does not disclose that the band-like connection section and the porous nickel substrate together have a thickness of 20-100% of the overall thickness of the electrode (applicant's claim 3). However, Yamaguchi discloses that the thickness of the porous substrate is 0.07 or more and is thinner than 80% of the thickness of the electrode. When the porous substrate is thinner than 0.07mm, the reinforcement when welding the band-like connection section to a collecting electrode plate becomes less. If the thickness of the porous substrate becomes thicker than 80% of the electrode, the band-like connection section will become thick and space efficiency will fall. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the band-like connection section and the porous nickel substrate together have a thickness of 20-100% of the overall thickness of the electrode so that the band-like section and the porous substrate will not bulge out from the electrode. This will assist in neatly winding the electrode assembly and as a result, space efficiency, as taught by Yamaguchi. Yamaguchi clearly discloses that the thickness of

the band-like connection section and the porous nickel substrate, are a result effective variables. It has been held by the courts that discovering an optimum value or workable ranges of a result-effective variable involves only routine skill in the art, and thus not novel. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). See MPEP 2144.05.

Yamaguchi does not disclose that the positive and negative electrodes are formed of a metal substrate of metal foil possessing bulged strips (applicant's claims 1, 5, and 7). However, Aida teaches battery electrode plate made from a metal foil of nickel, copper, aluminum, or iron (claim 2). The active material layer is coated on both sides of the electrode plate (fig. 1). The thickness is about 20 microns [0065]. The electrode plate comprises a 3-dimension configuration of bulges formed on both surfaces. Aida teaches that this design promotes high current discharge property per unit capacity compared with just a 2-dimensional core material while the maintenance capacity of an active material will become very high and will become good constituting particularly a spiral electrode group, since it is held in the condition of being held by curved bulges from both sides of the metal sheet [0017]. The protrusions alternate on both sides of the sheet (fig. 2). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to add Aida's electrode plate to Yamaguchi's spiral battery for the benefit of being able to achieve high discharge property and coat the active material on both sides.

Yamaguchi does not specify a cell and discloses that the battery can be of any type, such as a nickel cadmium battery or a lithium ion battery (applicant's rechargeable battery).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Lee whose telephone number is 571-272-8699. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ckl

Cynthia Lee

Patent Examiner

JONATHAN CREPEAU
PRIMARY EXAMINER